

WHAT IS CLAIMED IS:

- 1 1. An apparatus comprising:
2 a substrate with holes embossed therein; and
3 carbon nanotubes deposited in the holes.
- 1 2. The apparatus as recited in claim 1, further comprising:
2 a conductive layer within the substrate electrically connecting at least a
3 portion of the carbon nanotubes within a plurality of the holes.
- 1 3. The apparatus as recited in claim 2, further comprising:
2 a gate electrode coextensive with the substrate.
- 1 4. The apparatus as recited in claim 2, a material for affixing the carbon
2 nanotubes within the holes.
- 1 5. The apparatus as recited in claim 3, further comprising:
2 an anode positioned a distance from the substrate, having a phosphor for
3 emitting photons in response to bombardment from electrons emitted by the carbon
4 nanotubes.

- 1 6. The apparatus as recited in claim 5, further comprising:
2 circuitry for causing the electrons to be emitted by the carbon nanotubes.

1 7. A data processing system comprising:
2 a processor;
3 a memory device;
4 a storage device;
5 an input device;
6 a display device; and
7 a bus system for coupling the processor to the memory device, the storage
8 device, the input device, and the display device, wherein the display device further
9 comprises:
10 a substrate with holes embossed therein; and
11 carbon nanotubes deposited in the holes.

1 8. The data processing system as recited in claim 7, further comprising:
2 a conductive layer within the substrate electrically connecting at least a
3 portion of the carbon nanotubes within a plurality of the holes.

1 9. The data processing system as recited in claim 8, further comprising:
2 a gate electrode coextensive with the substrate.

1 10. The data processing system as recited in claim 8, further comprising:
2 a gate electrode coextensive with the substrate.

1 11. The data processing system as recited in claim 9, further comprising:
2 an anode positioned a distance from the substrate, having a phosphor for
3 emitting photons in response to bombardment from electrons emitted by the carbon
4 nanotubes.

1 12. The data processing system as recited in claim 11, further comprising:
2 circuitry for causing the electrons to be emitted by the carbon nanotubes.

1 13. A method for making a field emission device, comprising the steps of:
2 providing a substrate;
3 embossing holes into the substrate; and
4 depositing carbon nanotubes into the embossed holes so that substantially all
5 of the carbon nanotubes are positioned with their axes substantially parallel with long
6 axes of the embossed holes.

1 14. The method as recited in claim 13, wherein the depositing step further
2 comprises the steps of:
3 depositing on the substrate a solution containing the carbon nanotubes; and
4 causing the carbon nanotubes to fall into the embossed holes.

1 15. The method as recited in claim 14, further comprising the step of:
2 positioning one or more conductive layers at the bottoms of the holes so that
3 the carbon nanotubes electrically contact the one or more conductive layers.

1 16. The method as recited in claim 15, further comprising the step of:
2 positioning a gate electrode in proximity to the substrate.

1 17. The method as recited in claim 16, further comprising the step of:
2 positioning an anode with a phosphor a distance from the substrate.

1 18. The method as recited in claim 17, further comprising the step of:
2 connecting a voltage potential to the anode and the conductive layer.